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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/256,227	02/24/1999	SHIGEO KISO	35.C13358	9571

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EXAMINER	
BROPHY, JAMIE LYNN	
ART UNIT	**PAPER NUMBER**
2822	

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/256,227	Applicant(s) KISO ET AL.	
	Examiner J. L. Brophy	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14,27,28,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14,27,28,30 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This office action is in response to the RCE filed 9/29/03.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/18/03 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 31 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide support for a photovoltaic element wherein the concentration of the silane coupling agent is higher at a location near the surface and near the photovoltaic element. The specification

teaches an encapsulant resin that comprises an additive dissolved therein, wherein the additive has a concentration gradient so that the concentration is higher either near the photovoltaic element or near the surface member. However, the specification does not teach that the concentration may be higher near the photovoltaic element ***and*** near the surface member.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14, 27, 28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka et al (5,530,264) in view of Ohta et al (5,641,997).

Kataoka et al teach a photovoltaic element 101 encapsulated with an encapsulant resin 102,104, the encapsulant resin comprising a hot-melt polymer resin (col. 14, lines 48-50) comprising an UV absorbing agent and a silane coupling agent dissolved therein (col. 19, lines 27-37 and col. 22, line 49 through col. 23, line 11) and a surface member 103, 106 on a surface of the encapsulant resin 102, 104. See, for example, Fig. 2 and accompanying text.

However, Kataoka et al do not teach that the dissolved UV absorbing agent and silane coupling agent have a concentration gradient in the direction of thickness of the encapsulant resin.

Ohta et al teach a semiconductor element 5 encapsulated with an encapsulant resin 2, the encapsulant resin comprising an additive 18, wherein the additive has a concentration gradient in the direction of thickness of the encapsulant resin 2. See Figs. 4 and 5 and accompanying text. In addition, Ohta et al teach that, depending on what the additive is and what the properties of the additive are, the additive may exist in a greater concentration near the surface of the semiconductor element, or the additive may exist in a greater concentration near the surface of the encapsulant resin. For example, the resin composition in contact with the semiconductor chip contains a smaller amount of the flame retardant additive and a larger amount of the colorant additive (col. 17, lines 15-19 and col. 18, lines 34-38).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the encapsulant resin taught by Kataoka et al by forming the encapsulant resin so that the additive has a concentration gradient in the direction of thickness of the encapsulant resin so as to improve a property which is improved when the additive exists at one surface of the encapsulant without deteriorating a property which is deteriorated when the additive exists at the opposite surface (see Ohta et al, col. 2, lines 53-61).

Response to Arguments

Applicant's arguments filed 7/22/03 have been fully considered but they are not persuasive.

Applicant argues (see p. 5 of arguments filed 7/22/03) that the Ohta et al reference teaches an encapsulated chip wherein the mold releasing agent and/or the adhesive agent in the encapsulant have a gradient concentration in order to improve the mold releasing property of an encapsulant resin without impairing its adhesiveness to a chip. Applicant argues that the Ohta et al reference does not teach or suggest distributing an ultraviolet absorbing agent in an encapsulant resin with a concentration gradient and making the concentration of the ultraviolet absorbing agent higher at a light incidence side of the encapsulant resin. However, the Ohta et al reference teaches that it would be beneficial for additives in a resin to have a concentration gradient in order to improve a property which is improved when the additive exists in the resin on the chip side without deteriorating a property which is deteriorated when the additive exists at an outer surface of the device. Ohta et al provide several examples of additives for which it is beneficial to have a concentration gradient (see, for example, Ohta et al, col. 3, lines 50-58). A person of ordinary skill in the art at the time the invention was made would have been motivated to modify the encapsulant resin taught by Kataoka et al by forming the encapsulant resin so that the additive has a concentration gradient in the direction of thickness of the encapsulant resin in order to improve a property which is improved when the additive exists at one surface of the encapsulant without deteriorating a property which is deteriorated when the additive exists at the opposite surface as taught by Ohta et al. Even if the Ohta et al reference does not specifically mention ultraviolet absorbing agent and silane coupling agent, the examiner maintains that the principles taught by Ohta et al can be applied to the structure taught by Kataoka et al and that the

motivation for doing so is supplied by Ohta et al, as clearly pointed out in the above 35 USC § 103 rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. Brophy whose telephone number is (703) 308-6182. The examiner can normally be reached on M-F (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

J.L.B.

jlb

AMIR ZARABIAN
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